

Attachment 3

S7110 LifeBook Test Report

Report number: FG06-016EAL



Report No. : FG06-016EAL (1/11)

EMI Test report

CATEGORY : EN55022(1998), +A2 / CISPR 22(1997) , +A2 ; Class B
AS/NZS CISPR22 (2002)
FCC Part-15 (2004)
VCCI (2005)
EN301 489-01 V1.4.1

MANUFACTURER : FUJITSU LIMITED
4-1-1, Kamikodanaka, Nakahara-ku, Kawasaki 211-8588 JAPAN

PRODUCT TYPE : Personal computer S7110
AC Adapter SQ2N80W19P-01 SEC100P2-19.0 SED80N2-19.0
Port Replicator FPCPR63
Bluetooth module EYTF3CS FT
Grouping model: S7110D

TEST SITE : FUJITSU GENERAL EMC LABORATORY
1116, Suenaga, Takatsu-ku, Kawasaki 213-8502 JAPAN

DATE TESTED : February 18, 2006 21°C 30%

TESTED BY : Akio Ogawa

Above EUT conforms mentioned all regulations.

APPROVED BY : for K. Shimano DATE : February 20, 2006
Hiroyuki Shimano, President

FUJITSU GENERAL EMC LABORATORY LIMITED

1116, Suenaga, Takatsu-ku, Kawasaki 213-8502 JAPAN

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CLIENT : Engineering Dept.1 Mobile Computing Division, FUJITSU LIMITED
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※ The description of the EUT and the system configuration in this report are provided by the client.



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1. Description of EUT

The EUT: S7110 series personal computer using Yonah (Dual) 2.00 GHz microprocessor has a 14 inch SXGA+ / XGA Display, DVD-super multi drive and a system disk (40 GB×1). The EUT has the interface to extend for RGB, DVI⑩, S-Video④, IEEE1394②, Mic-in×2①⑧, Phone-out×2①⑧, LAN⑨, Modem⑥, USB×5⑤②⑦②, Serial③, RS232C④ and has Express card slot, PC card slot and wireless LAN.

The following type code are given according to the Centrino (Yonah CPU, Intel chipset and Golan wireless LAN).

Type	CPU, Chipset and Wireless LAN
S7110	Centrino
S7110D	Non-Centrino

Internal clock frequency : 4.000 MHz, 14.318 MHz, 24.576 MHz, 25.000 MHz, 33.300 MHz, 48.000 MHz, 96.000 MHz, 100.000 MHz, 166.000 MHz

Input power : AC 100 - 230V, 50 / 60 Hz, Single-phase 2 wires

The EUT is intended to general use in the residential / domestic area or commercial and light industrial area; category class B.

1.1 Test system configuration

The measurement was performed using S7110 (Yonah 2.00 GHz microprocessor) and SXGA+ display with FPCPR63 as a maximum personal computer system with all related equipment shown in figure-1. The final measurement was performed using SXGA+ display and DVI connection that maximum generate emissions by the primary measurement.

The EUT was selected from the pre-product line.

1.2 Operating condition

The following EUT and dependent devices were tested using "EMC.exe" program for continuously operating and to obtain maximize emission.

- | | | |
|------------------|------------|---|
| ① PC-1 | LCD-1: | Display "H" character on screen (Maximum contrast / Luminescence/
(Display resolution 1400×1050 / Refresh rate 60Hz) |
| | LAN: | Continuous transmission and receiving ping command. (1000 Mbps Max) |
| | Modem: | Connection only(Radiated emission)
Continuous transmission of the test data (56 kbps)
(Telecommunication line conducted emission) |
| | HDD-1: | Read/write the test data |
| | DVD: | Play the test disk |
| | Bluetooth: | Continuous transmission of the test data |
| ② Express card: | | Non-connection (Radiated emission)
Read/write the test data (Conducted emission) |
| ③ PC card: | | Non-connection (Radiated emission)
Read/write the test data (Conducted emission) |
| ④ USB2.0 Memory: | | Read/write the test data (480 Mbps) |
| ⑤ LCD-2: | | Display "H" character on screen (Maximum contrast / Luminescence) |
| ⑥ Headset: | | Connecting only |
| ⑦ USB mouse: | | Connecting only |
| ⑧ PC-2: | | Continuous transmission and receiving ping command. (1000 Mbps Max) |
| ⑨ PRINTER: | | Connection only |
| ⑩ AV selector: | | Connection only |
| ⑪ IEEE1394 HDD: | | Read/write the test data. (480 Mbps) |
| ⑫ Keyboard: | | Connection only |

2. EMI test results summary

Applied standard: EN55022 (1998), +A2 (2003)

Limit value: Class B

The test samples met the class B limit of EN55022(1998), +A2 (2003)/ CISPR22(1997) , +A2 (2002) and applicable following regulations as shown following highest 6 points of each emission profiles.

Australia, New Zealand: AS/NZS CISPR22(2002)

FCC Part-15(2004), Canada: CAN/CSA-CEI/IEC CISPR22-02

Japan: VCCI(2005), Taiwan: CSN 13438(1997)

The test result effective only for the EUT.

2.1 Radiated emission (30 MHz to 1,000 MHz) : Measured at 10 m distance

< AC 230 V / 50 Hz single phase >

Freq. (MHz)	pol.	Noise level (dB μ V/m)	Class B limit (dB μ V/m)	Margin (dB)
76.47	Horiz	26.3	30.0	3.7
76.47	Vert	28.4	30.0	1.6
141.12	Horiz	27.3	30.0	2.7
144.12	Vert	28.4	30.0	1.6
160.00	Vert	28.8	30.0	1.2
216.00	Vert	27.7	30.0	2.3

• Limit value ; EN55022(1998) / CISPR 22(1997)

• Measurement uncertainty : $\pm$ 3.3 dB (K=2, 95 %)

< AC 120 V / 60 Hz single phase >

Freq. (MHz)	pol.	Noise level (dB μ V/m)	Class B limit (dB μ V/m)	Margin (dB)
76.47	Horiz	27.5	30.0	2.5
76.47	Vert	29.0	30.0	1.0
141.12	Horiz	26.1	30.0	3.9
144.12	Vert	28.4	30.0	1.6
160.00	Vert	29.3	30.0	0.7
216.00	Vert	28.7	30.0	1.3

• Limit value ; FCC Part15

• Measurement uncertainty : $\pm$ 3.3 dB (K=2, 95 %)

2.2 Above 1 GHz RF Radiated emission(1 GHz to 10 GHz) : Measured at 3 m distance

Freq. (GHz)	Pol	Noise level (dB μ V/m)	FCC Part-15 Class B limit (dB μ V/m)		Margin (dB to AV)
			Peak	A V	
1.5126	Horzt	44.2	74.0	54.0	9.8
1.5126	Vert	43.5	74.0	54.0	10.5
1.6203	Horzt	47.8	74.0	54.0	6.2
1.6203	Vert	50.4	74.0	54.0	3.6
1.7276	Vert	43.9	74.0	54.0	10.1
2.1602	Vert	42.7	74.0	54.0	11.3

2.3 AC power line conducted emission (150 kHz to 30 MHz)

2.3.1 AC adapter : SQ2N80W19P-01

< AC 100 V / 50 Hz single phase >

Freq. (MHz)	Line #	Noise level (dB μ V)		Class B limit (dB μ V)		Margin (dB to AV)
		Q P	A V	Q P	A V	
0.195	# 1	50.2		63.8	53.8	3.6
0.195	# 2	48.0		63.8	53.8	5.8
1.202	# 1	38.7		56.0	46.0	7.3
1.202	# 2	38.4		56.0	46.0	7.6
7.000	# 1	44.0		60.0	50.0	6.0
7.000	# 2	44.0		60.0	50.0	6.0

< AC 120 V / 60 Hz single phase >

Freq. (MHz)	Line #	Noise level (dB μ V)		Class B limit (dB μ V)		Margin (dB to AV)
		Q P	A V	Q P	A V	
0.245	# 1	47.9		61.9	51.9	4.0
0.603	# 1	38.2		56.0	46.0	7.8
1.206	# 1	39.0		56.0	46.0	7.0
1.206	# 2	38.6		56.0	46.0	7.4
7.200	# 1	44.3		60.0	50.0	5.7
7.200	# 2	44.0		60.0	50.0	6.0

< AC 230 V / 50 Hz single phase >

Freq. (MHz)	Line #	Noise level (dB μ V)		Class B limit (dB μ V)		Margin (dB)	
		Q P	A V	Q P	A V	Q P	A V
0.290	# 2	51.6	35.6	60.5	50.5	8.9	14.9
0.405	# 1	41.9	37.9	57.8	47.8	15.9	9.9
0.405	# 2	42.2	38.8	57.8	47.8	15.6	9.0
1.620	# 1	39.5	33.2	56.0	46.0	16.5	12.8
7.200	# 1	43.4	37.4	60.0	50.0	16.6	12.6
7.200	# 2	43.5	37.6	60.0	50.0	16.5	12.4

- Limit value ; EN55022(1994) / CISPR 22(1993) and FCC Part-15.
- Measurement uncertainty : ± 2.5 dB (K=2, 95 %)

2.3.2 AC adapter : SEC100P2-19.0

< AC 100 V / 50 Hz single phase >

Freq. (MHz)	Line #	Noise level (dB μ V)		Class B limit (dB μ V)		Margin (dB to AV)
		Q P	A V	Q P	A V	
0.197	# 1	41.6		63.7	53.7	12.1
0.286	# 2	37.5		60.6	50.6	13.1
1.702	# 1	32.4		56.0	46.0	13.6
2.507	# 1	32.9		56.0	46.0	13.1
3.000	# 2	33.7		56.0	46.0	12.3
3.404	# 2	34.6		56.0	46.0	11.4

< AC 120 V / 60 Hz single phase >

Freq. (MHz)	Line #	Noise level (dB μ V)	Class B limit (dB μ V)		Margin (dB to AV)
			Q P	A V	
0.186	# 2	42.1	63.8	54.2	12.1
0.246	# 2	41.8	63.8	51.9	10.1
2.963	# 2	33.5	56.0	46.0	12.5
3.063	# 2	33.9	56.0	46.0	12.1
3.358	# 2	34.7	60.0	46.0	11.3
3.752	# 2	33.9	60.0	46.0	12.1

< AC 230 V / 50 Hz single phase >

Freq. (MHz)	Line #	Noise level (dB μ V)	Class B limit (dB μ V)		Margin (dB to AV)
			Q P	A V	
0.184	# 1	47.4	64.3	54.3	6.9
0.279	# 2	40.4	50.9	50.9	10.5
0.372	# 1	36.0	58.5	48.5	12.5
3.083	# 2	33.0	56.0	46.0	13.0
3.434	# 2	34.6	56.0	46.0	11.4
3.647	# 2	32.7	56.0	46.0	13.3

- Limit value ; EN55022(1994) / CISPR 22(1993) and FCC Part-15.
- Measurement uncertainty : ± 2.5 dB (K=2, 95 %)

2.3.3 AC adapter : SED80N2-19.0

< AC 100 V / 50 Hz single phase >

Freq. (MHz)	Line #	Noise level (dB μ V)		Class B limit (dB μ V)		Margin (dB)	
		Q P	A V	Q P	A V	Q P	A V
0.200	# 1	55.6	41.2	63.6	53.6	8.0	12.4
0.200	# 2	55.8	41.9	63.6	53.6	7.8	11.7
0.269	# 1	49.0	32.8	61.2	51.2	12.2	18.4
0.269	# 2	47.9	32.3	61.2	51.2	13.3	18.9
0.324	# 1	45.9	32.7	59.6	49.6	13.7	16.9
0.388	# 1	44.2	27.3	58.1	48.1	13.9	20.8

< AC 120 V / 60 Hz single phase >

Freq. (MHz)	Line #	Noise level (dB μ V)		Class B limit (dB μ V)		Margin (dB)	
		Q P	A V	Q P	A V	Q P	A V
0.200	# 1	54.8	40.0	63.6	53.6	8.8	13.6
0.200	# 2	55.7	41.3	63.6	53.6	7.9	12.3
0.261	# 2	49.9	34.4	61.4	51.4	11.5	17.0
0.281	# 1	51.5	36.0	60.8	50.8	9.3	14.8
0.402	# 1	44.7	28.7	57.8	47.8	13.1	19.1
0.424	# 1	45.4	29.2	57.4	47.4	12.0	18.2

< AC 230 V / 50 Hz single phase >

Freq. (MHz)	Line #	Noise level (dB μ V)		Class B limit (dB μ V)		Margin (dB)	
		Q P	A V	Q P	A V	Q P	A V
0.195	# 1	60.3	46.1	63.8	53.8	3.5	7.7
0.195	# 2	60.2	45.0	63.8	53.8	3.6	8.8
0.280	# 1	52.0	37.2	60.8	50.8	8.8	13.6
0.280	# 2	52.7	38.9	60.8	50.8	8.1	11.9
0.390	# 1	47.9	33.5	58.1	48.1	10.2	14.6
0.390	# 2	48.1	33.9	58.1	48.1	10.0	14.2

- Limit value ; EN55022(1994) / CISPR 22(1993) and FCC Part-15.
- Measurement uncertainty : ± 2.5 dB (K=2, 95 %)

2.4 Telecommunication line conducted emission

< Telecom port >

Freq. (MHz)	Noise level (dB μ V)		Class B limit (dB μ V)		Margin (dB to AV)
	Q P	A V	Q P	A V	
0.568	56.8		74.0	64.0	7.2
1.137	57.4		74.0	64.0	6.6
1.421	58.6		74.0	64.0	5.4
1.992	56.4		74.0	64.0	7.6
5.117	54.1		74.0	64.0	9.9
7.963	54.4		74.0	64.0	9.6

< LAN port >

Freq. (MHz)	Noise level (dB μ A)		Class B limit (dB μ A)		Margin (dB to AV)
	Q P	A V	Q P	A V	
0.353	19.2		42.9	32.9	13.7
0.570	14.4		40.0	30.0	15.6
1.105	18.6		40.0	30.0	11.4
2.276	13.2		40.0	30.0	16.8
3.061	12.0		40.0	30.0	18.0
4.550	12.4		40.0	30.0	17.6

3. EUT modification under the test

None.

4. Measurement procedure and test equipment

4.1 Radiated emission

4.1.1 Radiated emission (30MHz~1,000MHz)

The EUT was set on the turntable in the 10 m RF semi-anechoic chamber.

The PC-2 and HUB were placed at outside of the chamber to make usual installation at the different place. The maximum noise level in the frequency range from 30 MHz to 1,000 MHz were measured by 10 m method with scanning the antenna height from 1 m to 4 m above the ground plane and rotates the EUT through 360 degrees for both horizontal and vertical polarization.

Preliminary measurement using spectrum analyzer peak detection was performed to arrange the minimum margin spectrum. The settings of the interface cables and the mouse were adjusted to obtain maximum level at the minimum margin spectrum. The final measurement was performed using the RFI receiver (CISPR Quasi-peak, 120 kHz band width) and calibrated broadband antennas or dipole antennas about the main spectrums that is obtained by the preliminary measurement.

Test equipment	Manufacturer	Type	S/N	Cal. Date	Due. Date
Bi Log antenna	Schwarzbeck	VULB9160	3118	2006.01.04	2007.01.04
Dipole antenna	Schwarzbeck	VHA9103	VHA91031573	2004.12.28	2006.12.28
Dipole antenna	Schwarzbeck	UHA9105	UHA91052119	2004.12.28	2006.12.28
Field strength meter	Rohde & Schwarz	ESCS30	849650/002	2005.04.25	2006.04.25
Spectrum analyzer	HP	85422E	3746A00242	2005.04.24	2006.04.24
RF switch	Rohde & Schwarz	PSU	848290/003	2005.04.25	2006.04.25
RF cable	————	C61	————	2005.04.25	2006.04.25
2nd semi-anechoic chamber	Riken eletech	————	————	2005.01.16	2007.01.16
EMI test program	FGE	Version 1.3			

4.1.2 Radiated emission (1 GHz~10 GHz)

The EUT was set on the 80 cm height non-reflective desk on the turntable. The radiated emission measurement from 1 GHz to 10 GHz: Operating rate 2.00 GHz was performed using the spectrum analyzer (Peak detection, 1MHz band width) and the horn antenna that was positioned at 3 m from the EUT for class B. The measurement was performed with both horizontal and vertical polarization, rotate the EUT through 360 degrees and fixed the antenna height to the EUT center

Test equipment	Manufacturer	Type	S/N	Cal. Date	Due. Date
Horn antenna	Schwarzbeck	BBHA9120D	136	2005.03.04	2007.03.04
Spectrum analyzer	Advantest	R3371A	75060396	2005.04.01	2006.04.01
Pre amplifier	HP	8449B	3008A01110	2005.03.24	2007.03.24

4.2 AC power line conducted emission

The conducted emission measurement was performed in the shielded room. The EUT was set on the 80 cm height wooden desk with using the 50Ω/50μH artificial mains network: AMN and operate the EUT by AC 100 V/ 50 Hz, AC 120 V/ 60 Hz and AC 230 V/ 50 Hz. Preliminary measurement using spectrum analyzer peak detection was performed in the frequency range from 150 kHz to 30 MHz to arrange the minimum margin spectrum. The setting of the cables was adjusted to obtain maximum level at the minimum margin spectrum. The final measurement was performed using the RFI receiver (CISPR Quasi-peak, 9 kHz band width) and recorded the maximum value in the monitored interval about the main spectrum that is obtained by the preliminary measurement.

Test equipment	Manufacturer	Type	S/N	Cal. Date	Due. Date
AMN for EUT	Kyoritsu	KNW-407	8-823-18	2006.01.15	2007.01.15
AMN for AE	Kyoritsu	KNW-242C	8-1387-7	2006.01.15	2007.01.15
Field strength meter	Rohde & Schwarz	ESCS30	849650/003	2005.04.25	2006.04.25
Spectrum analyzer	HP	85422E	3746A00239	2005.04.24	2006.04.24
RF switch	Rohde & Schwarz	PSU	848290/003	2005.04.26	2006.04.26
Band pass filter	Advantest	TR14202	03560027	2005.04.26	2006.04.26
6 dB attenuator	Kyoritsu	CFA-03	————	2005.04.26	2006.04.26
RF cable	————	CF009	————	2005.04.26	2006.04.26
EMI test program	FGE	Version 1.3			

4.3 Telecommunication line conducted emission

The conducted emission measurement was performed in the shielded room. The EUT was set on the 40 cm height wooden desk with using the impedance stabilization network: ISN and operate the EUT by AC 230 V/ 50 Hz. Preliminary measurement using spectrum analyzer peak detection was performed in the frequency range from 150 kHz to 30 MHz to arrange the minimum margin spectrum. The setting of the cables was adjusted to obtain maximum level at the minimum margin spectrum. The final measurement was performed using the RFI receiver (CISPR Quasi-peak, 9 kHz band width) and recorded the maximum value in the monitored interval about the main spectrum that is obtained by the preliminary measurement.

Test equipment	Manufacturer	Type	S/N	Cal. Date	Due. Date
ISN	Rohde & Schwarz	ENY22	830661 048	2005.11.28	2006.11.28
CP	Rohde & Schwarz	EZ-17	100007	2005.12.21	2006.12.21
Field strength meter	Rohde & Schwarz	ESCS30	849650/003	2005.04.25	2006.04.25
Spectrum analyzer	HP	85422E	3746A00239	2005.04.24	2006.04.24
RF switch	Rohde & Schwarz	PSU	848290/003	2005.04.26	2006.04.26
Band pass filter	Advantest	TR14202	03560027	2005.04.26	2006.04.26
6 dB attenuator	Kyoritsu	CFA-03	————	2005.04.26	2006.04.26
RF cable	————	CF009	————	2005.04.26	2006.04.26

5 Test site and traceability

The FUJITSU GENERAL EMC LABORATORY performs the test for VCCI / EN / CISPR regulation and Fujitsu / Fujitsu General internal regulations. The test procedures and test facilities are comply with international standard. The laboratory is filed on VCCI (Japan), accredited from NVLAP (USA) and authorized from TÜV P. S. (Germany, CE-marking).

VCCI : 1st semi-anechoic chamber(R-753/C-776), Small shielded room(C-777)
Large shielded room(C-778)
2nd semi-anechoic chamber(R-1460/C-1547), 2nd shielded room(C-1548)
3rd shielded room(C-1549)

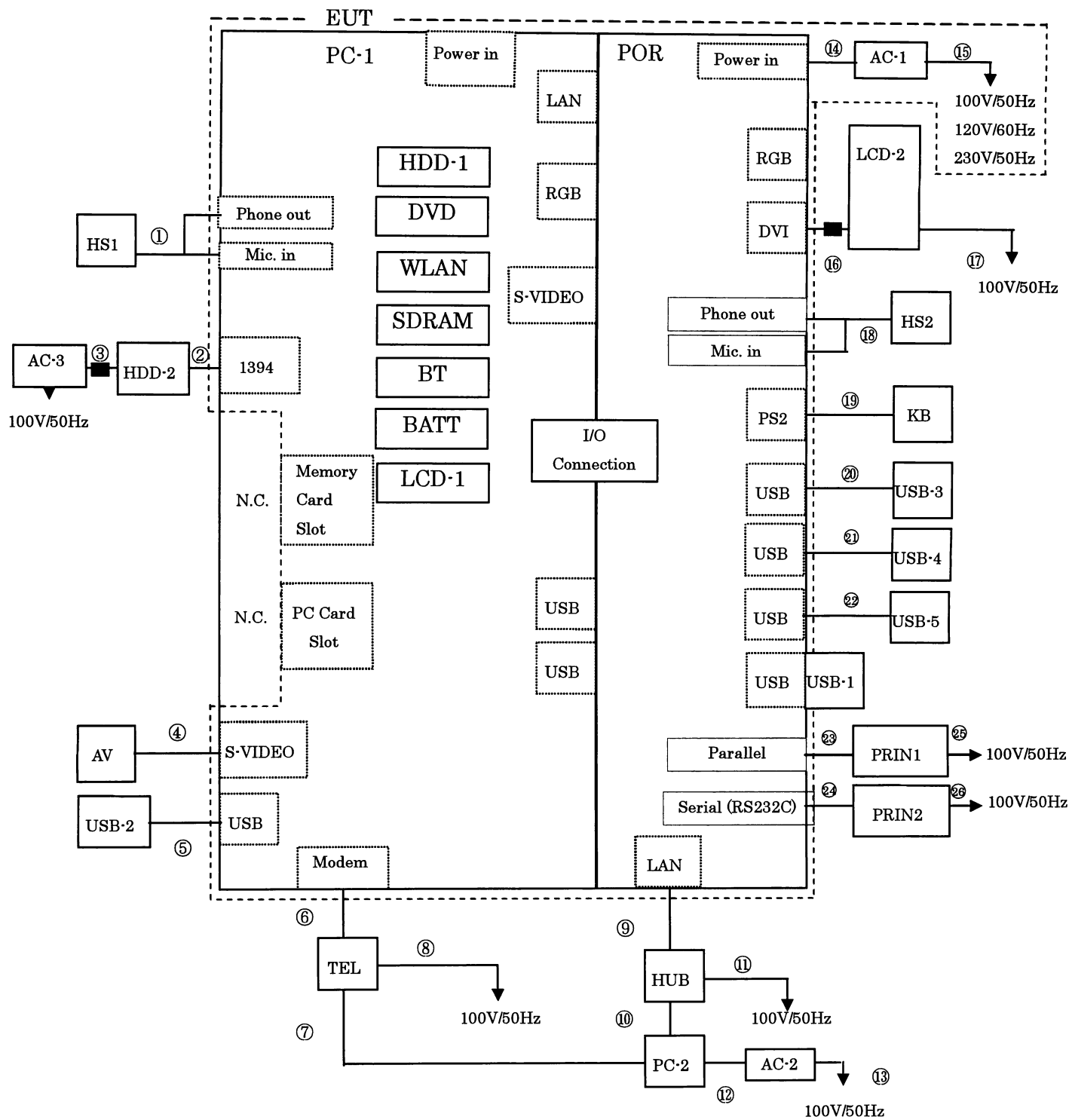
NVLAP : 1998.12.01 Accredited: Lab code 200373-0

TÜV P.S. : 1999.01.29 Authorized

TÜV Rheinland Japan : 2005.05.25 Appointed

The measuring equipment used in the laboratory and test data are traceable to the national or international standard. Each equipment is maintain by periodical calibration and by daily check as a total measurement system to keep those accuracy.

Figure-1 System configuration and cables



■ : Ferrite core

Main EUT				
Code	Name	Type	S/N	Product
PC-1	Personal computer	S7110	Pre-production sample	Fujitsu
Related EUT				
POR	Port Replicator	FPCPR63	_____	Fujitsu
AC-1	AC adapter	SQ2N80W19P-01	_____	Fujitsu
	AC adapter	SEC100P2-19.0	_____	Fujitsu
	AC adapter	SED80N2-19.0	_____	Fujitsu

Included device; PC-1

Code	Name	Type	S/N	Product
HDD-1	40GB HDD	MHV2040BH	NW37T5B25786	Fujitsu
DVD	DVD-Multi	UJ-841	_____	Matsushita
WLAN	Wireless LAN	WM3945ABG	_____	Intel
SDRAM	265 MB	MH4HTF3264HY-667B3	_____	_____
BT	Bluetooth	EYTF3CS FT	_____	TAOYO YUDEN
BATT	7800mA/h	FPCBP145	_____	Matsushita
LCD-1	14.1 inch SXGA+	LTD141EM5F	_____	ToshibaMatsushita

Assisted equipment

Code	Name	Type	S/N	Product
TEL	Telephone line simulator	3KDD002	2198003230	ASCII Corp.
LCD-2	LCD display	P19-1	YEGA217490	FSC
HDD-2	Hard disk drive	KC4020-N	0007293	FSC
HS1	Head set	AP-210Pro	_____	FSC
HS2	Head set	AP-210Pro	_____	FSC
PC-2	Personal computer	FMV LOOX	_____	Fujitsu
HUB	Switching Hub	ETG-SH-8	VD7000010513N	I·O DATA
AC-2	AC adapter	FMV-AC314	052000A	Fujitsu
AC-3	AC adapter	ACTN-21	_____	Sunfone
PRIN1	Printer	LX-300+	CLCY82194	EPSON
PRIN2	Printer	LX-300+	CLCY82131	EPSON
USB-1	USB Memory	256MB	_____	I·O DATA
USB-2	USB Mouse	M-BJ69	HCA50402505	FSC
USB-3	USB Mouse	M-BJ69	HCA50402874	FSC
USB-4	USB Mouse	M-BJ69	HCA50407420	FSC
USB-5	USB Mouse	M-BJ69	HCA50402507	FSC
KB	Keyboard	KBPC SX	10600360727	FSC
AV	AV Selector	JX-S8	_____	Victor

Cables SLD: Shielded NSLD: Non-shielded CAX: Coaxial

Connector MC: Metal NMC: Non-metal PMC: Point contact metal

No.	I/O Port	Name	Type	Length	Cable type
①	Phone-out / Mic-in	Headset cable	_____	2.2m	NSLD, MC
②	1394	IEEE1394 cable	_____	1.0m	SLD, MC
③	_____	AC adaptor cable	_____	1.8m	NSLD, NMC with core *1
④	S-VIDEO	S-VIDEO cable	_____	2.0m	SLD, MC
⑤	USB-2	USB mouse cable	_____	1.9m	SLD, NMC
⑥	Modem	Modem cable	_____	20.0m	NSLD, NMC
⑦	_____	Modem cable	_____	2.0m	NSLD, NMC
⑧	_____	AC power cable	_____	2.0m	3P-NSLD
⑨	LAN	LAN cable	_____	20.0m	SLD, MC
⑩	_____	LAN cable	_____	1.0m	SLD, MC
⑪	_____	AC power cable	_____	1.5m	2P-NSLD
⑫	_____	AC adaptor cable	_____	1.8m	NSLD, NMC
⑬	_____	AC power cable	_____	1.5m	2P-NSLD
⑭	_____	AC adaptor cable	_____	1.8m	NSLD, NMC
⑮	_____	AC power cable	_____	1.5m	2P-NSLD
⑯	DVI	DVI cable	_____	1.8m	SLD, MC with fixed core
⑰	_____	AC power cable	_____	1.8m	3 P-NSLD
⑱	Phone-out / Mic-in	Headset cable	_____	2.2m	NSLD, MC
⑲	Keyboard	Keyboard cable	_____	2.0m	SLD, MC
⑳	USB-3	USB mouse cable	_____	1.9m	SLD, MC
㉑	USB-4	USB mouse cable	_____	1.9m	SLD, MC
㉒	USB-5	USB mouse cable	_____	1.9m	SLD, MC
㉓	SERIAL	SERIAL cable	_____	2.0m	SLD, MC
㉔	RS232C	RS232C cable	_____	3.0m	SLD, MC
㉕	_____	Power cable	_____	2.0m	3 P-NSLD
㉖	_____	Power cable	_____	2.0m	3 P-NSLD

* 1: KITAGAWA industry Co.,Ltd; TFC-23-11-14